Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, DC. 20554

In the Matter of		
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	)	
Amendment of the Commission's	**)**	**RM-10330**
Rules to Shield Electronics	**)**	
Equipment Against Acts of War	**)**	
Or Terrorism Involving Hostile	**)**	
Use of Electromagnetic Pulse	**)**	
(EMP)	**)**	

To: The Commission

CONTINUING REPLY COMMENTS
of Donald J. Schellhardt and Nickolaus E. Leggett

The following are the third set of reply comments from Nickolaus E. Leggett and Donald J. Schellhardt. Leggett and Schellhardt are the petitioners in RM-10330 that requests regulations for the protection of civilian communications equipment from electromagnetic pulse (EMP). These reply comments are in addition to our reply comments, to the comments from REC Networks, which we filed on November 30, 2001 and our Additional Reply Comments that were filed on December 21, 2001.

This third set of Reply Comments addresses several additional written comments which were posted in this Docket, by the Commission's Electronic Comment Filing System (ECFS).

The Verizon telephone companies submitted comments on December 17, 2001 stating that the telecommunications industry has "implemented a series of standards to protect against the levels of EMP that can realistically be anticipated in the event of a non-localized attack (called "baseline" standards). In addition, the attached declaration of Percy

E. Pool (Verizon Lead Engineer – Network Engineering) states that Verizon implements baseline standards that would protect against EMP.

There is a serious question about the adequacy of the baseline standards since Verizon's view is that "...a device that is detonated at high altitude, which would disrupt communications over a wide area, is likely to disburse the energy such that no one locality would receive enough EMP to cause permanent damage to electronic equipment. Such a device would disrupt communications temporarily, just as sunspots cause sporadic communications outages, but it would not damage the equipment itself."

This is **not** a consensus view of EMP impacts. For example, Dr. William A. Radasky, who is Chairman of the International Electrotechnical Commission (IEC) subcommittee on high altitude electromagnetic pulse (HEMP) standards, states in his comments that "I have reviewed several ANSI T1 standards that were developed and updated over the past seven years, and I find these standards to have little value in providing HEMP hardening and/or testing procedures that could result in a protected communications network. In fact only one of the documents (T1.320-1994, reaffirmed 1999) deals directly with the HEMP threat and certainly not in a comprehensive way. I agree with the petitioner that the commercial standards work performed in the late 1980s and the 1990s in the U.S. have not resulted in a HEMP-hardened commercial communications system."

Other studies of HEMP including those of the National Communications System (NCS) indicate that HEMP effects are much more intense, comprehensive, and permanent than the observed effects of sunspots.

It is likely that the baseline standards being relied upon by the telecommunications industry are inadequate for actual HEMP situations. To deal with this issue, the Commission should evaluate the ATIS standards as compared with the IEC standards.

In addition, the scope of application of the "above baseline" standards is currently quite limited to specialized government contracts. This suggests the need to expand the applicability of these presumably-more-effective standards to a much larger set of communications equipment by mandatory regulations. In this regard it is interesting to note that the SBC Communications comments state that the "EMP and shielding and protection methods are addressed in the **above baseline** requirements." SBC Communications makes no attempt to attribute EMP protection to the **baseline** standards.

Also, contrary to Verizon's contention, we are not merely proposing conductive shielding but rather we are suggesting a mix of protective steps grouped under the term "shielding". This includes surge protectors, grounding, etc. as well as conductive and magnetic shielding. All EMP protective technologies are welcomed by us.

Respectfully submitted,

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